

CLAIMS

What is claimed is:

1 1. An optical sensing assembly for a computer input device configured to
2 receive power from a self-contained power source, the optical sensing assembly for
3 characterizing movement relative to the optical sensing assembly and comprising:

4 a photo-sensitive element configured to receive reflected light from a light source
5 to produce a first image data associated with a first image and a second
6 image data associated with a second image;

7 an image data processing logic coupled to the photo-sensitive element for
8 receiving the image data and configured to determine image difference
9 data from differences between the first image data and the second image
10 data; and

11 a power control logic operatively coupled to the image data processing logic and
12 configured to implement a native power control mode wherein an internal
13 algorithm changes the power consumption of the optical sensing assembly
14 from a full power mode to one or more lower power modes based on the
15 image difference data.

1 2. The optical sensing assembly of claim 1, wherein the photo-sensitive element is
2 one of a CCD array or a photo diode.

1 3. The optical sensing assembly of claim 2, wherein the photo-sensitive element is
2 a CCD array having a set of pixels and the image data comprises a bit vector
3 corresponding to a set of states of the set of pixels.

1 4. The optical sensing assembly of claim 1, further comprising a focusing lens
2 coupled to the photo-sensitive element for focusing the reflected light to the photo-
3 sensitive element.

1 5. The optical sensing assembly of claim 1, wherein the image data processing
2 logic is further configured to translate the image difference data to one of position data or
3 displacement distance data.

1 6. A method for detecting movement with a photo sensing device configured to
2 receive power from a self-contained power source, the method comprising:

3 receiving reflected light from a light source to produce a first image data

4 associated with a first image and a second image data associated with a

5 second image;

6 determining image difference data from differences between the first image data

7 and the second image data; and

8 implementing a native power control mode wherein an internal algorithm changes

9 the power consumption of the photo-sensing device from a full power

10 mode to one or more lower power modes based on the image difference

11 data.